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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,548	08/23/2001	Ping Mei	10015160-1	9182

7590 09/11/2002

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EXAMINER

WEISS, HOWARD

ART UNIT PAPER NUMBER

2814

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/934,548

Applicant(s)

MEI ET AL.

Examiner

Howard Weiss

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 ~~is~~ are pending in the application.
- 4a) Of the above claim(s) 1-6 and 21-25 ~~is~~ are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-20 ~~is~~ are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-25 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Attorney's Docket Number: 10015160-1

Filing Date: 8/23/01

Continuing Data: none

Claimed Foreign Priority Date: none

Applicant(s): Mei et al. (Eaton, Jr.)

Examiner: Howard Weiss

Election/Restrictions

1. The Applicants' election with traverse of the Group I invention, Claims 7 to 20, in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the search and examination of Groups I and III (Claims 1 to 6) can be made without serious burden on the Examiner. This is not found persuasive because the inventions were shown to be distinct since the process for using the product as claimed can be practiced with another materially different product (the Group III invention could use a memory cell without a diffusive metal; see MPEP § 806.05(h)). Therefore, these inventions are distinct for the reasons given and, as shown by their different classifications, the fields of search are not co-extensive and separate examination would be required

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1 to 6 and 21 to 25 are withdrawn from consideration as being for a non-elected invention. The Applicants are requested to cancel the non-elected claims as part of a complete response to this office action. Cancellation of the non-elected claims would not preclude the later filing of a divisional application on the non-elected invention (please see 35 USC 120 and 121).

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "line 3-3" as described in Lines 19 to 22 on Page 5 of the Specification. A proposed

drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 7 to 11, 13 to 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi (U.S. Patent No. 6,005,270) and DiMaria et al. (U.S. Patent No. 4,939,559).

Noguchi discloses most of the claimed invention (e.g. Figure 10 and Column 16 Lines 17 to 44) including:

- a substrate **10** of glass or plastic
- a plurality of gate **W_n** and data **B_n** with memory cells **MT_n** where said lines cross (Figure 3A)
- said memory cells comprising:

- a channel region **31b** with source/drain doped regions coupled to said channel region and parts of a continuous layer of semiconductive material
- floating **32a** and control **33a** gates with gate insulator **22a**, **23a** disposed between said gates

However, Noguchi shows the control gate comprising silicon instead of a diffusive metal such as silver. DiMaria et al. teach (Column 7 Lines 40 to 51) that silver is an equivalent structure known in the art. Therefore, because these two conductors were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute silver for silicon.

In reference to the claim language referring to responsiveness of the diffusive metal to a write voltage to diffuse conductive elements through the gate insulator, intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

6. Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi and DiMaria et al., as applied to Claims 7 and 13 above, and further in view of Kojima (U.S. Patent No. 5,644,528).

Noguchi and DiMaria et al. show most aspects of the instant invention (Paragraph 5) except for the floating gate being a plurality of floating gates. Kojima teaches (e.g. Figure 3) to use a plurality of floating gates **4_n** to increase the memory capacity of the storage cell (Column 1 Lines 46 to 49). It would have been obvious to a person of ordinary skill in the art at the time of invention to use a plurality of floating gates as

taught by Kojima in the device of Noguchi and DiMaria et al. to increase the memory capacity if the storage cell.

7. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi and DiMaria et al., as applied to Claims 7 and 13 above, and further in view of Ngo et al. (U.S. Patent No. 6,420,752).

Noguchi and DiMaria et al. show most aspects of the instant invention (Paragraph 5) except for the gate lines comprising first and second conductors. Ngo et al. teach (e.g. Figure 4A) to form a gate lines of two layers **218, 226** so as to form a "cap" or "passivation" layer to protect the gate line (Column 5 Lines 19 o 33). It would have been obvious to a person of ordinary skill in the art at the time of invention to form a gate lines of two layers as taught by Ngo et al. in the device of Noguchi and DiMaria et al. so as to form a "cap" or "passivation" layer to protect the gate line.

Conclusion

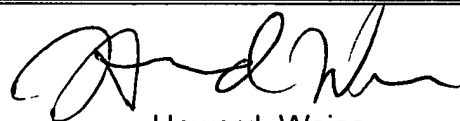
8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications. The official TC2800 Before-Final, **(703) 872-9318**, and After-Final, **(703) 872-9319**, Fax numbers will provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.

10. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ 315	9/6/02
Other Documentation: none	
Electronic Database(s): EAST, IEL	9/6/02



Howard Weiss
Examiner
Art Unit 2814

HW/hw
6 September 2002